

ABSTRACT OF THE DISCLOSURE

A servo control apparatus and method controls systems at least partially on the basis of an observable variable that has an absolute value functional relationship with the controlled variable and does not change sign for positive and negative variations from a nominal value. When applied to the positional control of an object, the control system observes a value of a position error signal and maps that signal to two different potentially correct displacement values. Two estimators within the control system are initiated, one using the positive displacement and the other using the negative displacement, and the two estimators each predict the future position of the object and the corresponding position error signal for each estimated position. A new position error signal is detected and compared to the two estimated position error signals. After sufficient system evolution, the control system can select one or the other of the estimators as being correct and the associated displacement is identified as correct and is used for future positioning applications, preferably until the sign of the displacement of the head again becomes ambiguous. The control system can be used in combination with other control mechanisms including those using complimentary control information that provides more complete positioning information. The control method, system and apparatus find particularly advantageous application in magnetic storage hard disk drive systems.